Market Analysis Program (MAP)

Industry Sector/ Cross-Industry Markets 1988-1993

Appendix B: Forecast Data Base

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DECEMBER 1988

INDUSTRY SECTOR/CROSS-INDUSTRY MARKETS 1988-1993

APPENDIX B: FORECAST DATA BASE

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Market Analysis Program
(MAP)

Industry Sector/Cross-Industry Markets, 1988-1993
Appendix B: Forecast Data Base

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EXHIBIT B-1

INFORMATION SERVICES INDUSTRY USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993
($ Millions)

Delivery Mode	1987	87-88 Growth (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Information Services Industry	67,380	18	79,470	92,985	108,720	127,010	148,210	173,150	17
Processing Services	16,780	12	18,850	21,155	23,755	26,425	29,400	32,745	12
Remote Batch/Interactive Processing Services	13,600	12	15,205	17,005	19,015	21,040	23,270	25,735	11
- Transaction Processing	11,150	12	12,475	13,955	15,635	17,345	19,240	21,325	11
- Utility Processing	1,090	7	1,160	1,240	1,300	1,320	1,320	1,320	3
- Other Processing	1,360	15	1,570	1,810	2,080	2,375	2,710	3,090	15
Network Services	4,945	25	6,210	7,675	9,440	11,565	14,100	17,185	23
Electronic Information Services	3,950	25	4,970	6,165	7,515	9,130	10,935	13,040	21
- On-line Data Bases	3,290	23	4,080	4,990	5,955	7,060	8,215	9,490	18
- News	660	34	890	1,175	1,560	2,070	2,720	3,550	32
Network Applications	995	24	1,240	1,510	1,925	2,435	3,165	4,145	28
- Value-Added Networks	560	23	690	810	1,015	1,215	1,495	1,745	2
- Electronic Data Interchange	130	56	200	310	470	730	1,130	1,810	56
- Electronic Mail	305	16	350	390	440	490	540	590	11
Applications Software	10,670	21	12,970	15,235	17,950	21,300	25,415	30,310	19
Mainframe	3,820	12	4,285	4,695	5,180	5,680	6,235	6,845	10
Minicomputer	3,565	16	4,125	4,730	5,380	6,150	6,995	7,980	14
Workstation/PC	3,285	28	4,560	5,810	7,390	9,470	12,185	15,485	28
Systems Software	9,880	22	12,095	14,730	17,865	21,630	25,880	30,835	21
Mainframe	5,110	17	5,965	6,940	8,035	9,290	10,600	12,055	15
Minicomputer	3,400	19	4,050	4,810	5,680	6,710	7,880	9,220	18
Workstation/PC	1,370	52	2,080	2,980	4,150	5,630	7,400	9,560	35
Turnkey Systems	8,535	12	9,525	10,580	11,675	12,775	13,940	15,155	10
Equipment	4,685	10	5,155	5,600	6,185	6,605	7,040	7,450	8
Packaged Software	1,970	9	2,150	2,360	2,600	2,810	3,020	3,230	8
Customized Software	600	24	750	930	1,020	1,250	1,510	1,830	20
Professional Services	1,280	15	1,470	1,690	1,870	2,110	2,370	2,645	12
Systems Integration	3,855	25	4,800	6,025	7,545	9,470	11,770	14,725	25
Equipment	1,740	23	2,125	2,630	3,225	3,970	4,830	5,910	23
Packaged Software	350	22	425	520	630	770	930	1,130	22
Other Services	280	15	325	370	430	490	560	640	15
Professional Services	1,485	30	1,925	2,505	3,260	4,240	5,450	7,045	30
Professional Services	12,715	18	15,020	17,585	20,490	23,845	27,705	32,195	16
Consulting	2,520	23	3,110	3,770	4,540	5,470	6,520	7,800	20
Education & Training	1,635	20	1,960	2,330	2,750	3,255	3,820	4,500	18
Software Development	7,540	17	8,805	10,215	11,800	13,570	15,655	17,985	15
Systems Operations	1,020	12	1,145	1,270	1,400	1,550	1,710	1,910	11

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EXHIBIT B-2

INFORMATION SERVICES INDUSTRY USER EXPENDITURE FORECAST BY INDUSTRY SECTOR, 1988-1993

($ Millions)

Industry Sector	1987	87-88 Growth (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Information Services Industry	67,380	18	79,470	92,985	108,720	127,010	148,210	173,150	17
Discrete Manufacturing	6,685	23	8,205	9,590	11,215	13,100	15,350	18,015	17
Process Manufacturing	2,955	18	3,510	4,190	4,990	5,915	6,985	8,250	19
Transportation	2,055	15	2,370	2,780	3,260	3,795	4,420	5,145	17
Utilities	800	17	955	1,100	1,290	1,535	1,800	2,150	18
Telecommunications	1,580	16	1,830	2,175	2,575	3,010	3,550	4,200	18
Wholesale Distribution	1,355	19	1,615	1,900	2,260	2,685	3,225	3,885	19
Retail Distribution	1,180	20	1,415	1,700	2,055	2,495	3,065	3,765	22
Banking & Finance	7,590	18	8,930	10,480	12,305	14,475	17,060	20,185	18
Insurance	2,655	17	3,110	3,665	4,295	5,070	5,960	7,050	18
Medical	2,775	16	3,215	3,765	4,385	5,130	5,990	7,025	17
Education	1,050	11	1,145	1,275	1,410	1,555	1,785	1,915	11
Services	1,705	16	2,000	2,285	2,625	2,995	3,435	3,935	15
Federal Government	6,500	15	7,450	8,515	9,695	11,025	12,435	14,040	14
State & Local Government	2,780	18	3,280	3,755	4,340	4,985	5,720	6,580	15
Other Industry Sector	1,360	12	1,520	1,755	2,010	2,285	2,600	2,980	14
Total Industry Sectors	43,025	17	50,550	58,930	68,710	80,055	93,380	109,120	17
Cross-Industry Sector									
Accounting	2,610	11	2,905	3,180	3,500	3,870	4,270	4,790	11
Education & Training	340	13	380	435	485	550	640	735	14
Engineering & Scientific	730	16	845	990	1,155	1,350	1,600	1,910	18
Human Resources	1,780	16	2,065	2,295	2,535	2,770	3,030	3,310	10
Office Systems	1,760	21	2,130	2,530	2,995	3,555	4,210	4,985	19
Planning & Analysis	1,700	17	2,000	2,235	2,515	2,830	3,185	3,600	13
Other Cross-Industry Sector	1,005	14	1,130	1,295	1,490	1,715	1,940	2,205	14
Total Cross-Industry Sectors	9,925	15	11,455	12,960	14,675	16,640	18,875	21,535	13
Other									
Cross-Industry Data Bases	2,030	26	2,570	3,245	4,010	4,910	5,965	7,170	23
Other Processing Services	1,360	15	1,570	1,810	2,080	2,375	2,710	3,090	15
Utility Processing Services	1,090	7	1,160	1,240	1,300	1,320	1,320	1,320	3
Cross-Industry System Operations	70	3	70	70	80	80	80	80	3
System Software	9,880	22	12,095	14,730	17,865	21,630	25,880	30,835	21
Total Other	14,430	21	17,465	21,095	25,335	30,315	35,955	42,495	19

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EXHIBIT B-3

PROCESSING SERVICES USER EXPENDITURE FORECAST BY INDUSTRY SECTOR, 1988-1993
($ Millions)

Industry Sector	1987	87-88 Growth (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Information Services Industry	16,780	12	18,850	21,155	23,755	26,425	29,400	32,745	12
Discrete Manufacturing	980	10	1,080	1,210	1,370	1,520	1,700	1,890	12
Process Manufacturing	595	15	680	775	890	1,005	1,135	1,270	13
Transportation	1,385	12	1,560	1,795	2,065	2,340	2,665	3,020	14
Utilities	75	10	90	90	110	120	130	140	11
Telecommunications	490	15	560	650	760	860	990	1,130	15
Wholesale Distribution	305	8	330	360	400	440	480	520	9
Retail Distribution	120	15	135	150	170	195	215	245	13
Banking & Finance	3,270	16	3,790	4,350	4,980	5,670	6,450	7,330	14
Insurance	730	13	825	940	1,070	1,220	1,380	1,560	14
Medical	895	14	1,025	1,160	1,300	1,460	1,640	1,850	12
Education	230	3	230	245	250	255	270	280	3
Services	595	13	680	730	790	845	900	955	7
Federal Government	620	4	650	700	740	795	840	905	7
State & Local Government	650	13	740	855	1,000	1,160	1,330	1,550	16
Other Industry Sector	540	10	595	670	750	825	910	1,010	11
Total Industry Sectors	11,480	13	12,970	14,680	16,645	18,710	21,035	23,655	13
Cross-Industry Sector									
Accounting	950	4	990	1,030	1,070	1,100	1,120	1,150	3
Education & Training	90	3	90	95	100	100	110	110	4
Engineering & Scientific	110	3	115	120	130	130	140	140	4
Human Resources	990	21	1,195	1,360	1,530	1,700	1,900	2,120	12
Office Systems	40	(2)	40	40	40	40	40	30	(4)
Planning & Analysis	220	(2)	220	210	200	200	185	180	(4)
Other Cross-Industry Sector	380	14	430	500	580	670	760	870	15
Total Cross-Industry Sectors	2,780	11	3,080	3,355	3,650	3,940	4,255	4,600	8
Other									
Utility Processing Services	1,090	7	1,160	1,240	1,300	1,320	1,320	1,320	3
Other Processing Services	1,360	15	1,570	1,810	2,080	2,375	2,710	3,090	15
Cross-Industry System Operations	70	3	70	70	80	80	80	80	3
Total Other	2,520	11	2,800	3,120	3,460	3,775	4,110	4,490	10

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EXHIBIT B-4

REMOTE BATCH/INTERACTIVE PROCESSING USER EXPENDITURE FORECAST BY INDUSTRY SECTOR, 1988-1993

($ Millions)

Industry Sector	1987	87-88 Growth (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Information Services Industry	13,600	12	15,205	17,005	19,015	21,040	23,270	25,735	11
Transaction Processing									
Discrete Manufacturing	890	10	980	1,100	1,240	1,380	1,540	1,710	12
Process Manufacturing	560	15	640	730	840	955	1,080	1,210	14
Transportation	1,355	12	1,520	1,745	2,010	2,280	2,595	2,940	14
Utilities	50	10	60	60	70	80	80	90	10
Telecommunications	460	15	525	610	710	810	930	1,060	15
Retail Distribution	105	14	120	135	155	175	195	225	13
Wholesale Distribution	255	7	270	300	330	360	390	420	9
Banking & Finance	2,250	15	2,590	2,950	3,360	3,790	4,270	4,800	13
Insurance	250	12	280	320	360	410	460	510	13
Medical	425	12	475	530	590	650	720	800	11
Education	160	3	160	170	170	175	180	190	3
Services	590	13	670	720	780	830	885	940	7
Federal Government	330	1	335	360	380	405	430	450	6
State & Local Government	160	20	190	220	260	300	340	400	16
Other Industry Sector	530	10	580	650	730	805	890	980	11
Total Industry Sectors	8,370	12	9,395	10,600	11,985	13,405	14,985	16,725	12
Cross-Industry Sector									
Accounting	950	4	990	1,030	1,070	1,100	1,120	1,150	3
Education & Training	90	3	90	95	100	100	110	110	4
Engineering & Scientific	110	3	115	120	130	130	140	140	4
Human Resources	990	21	1,195	1,360	1,530	1,700	1,900	2,120	12
Office Systems	40	(2)	40	40	40	40	40	30	(4)
Planning & Analysis	220	(2)	220	210	200	200	185	180	(4)
Other Cross-Industry Sector	380	14	430	500	580	670	760	870	15
Total Cross-Industry Sectors	2,780	11	3,080	3,355	3,650	3,940	4,255	4,600	8
Total Transaction Processing	11,150	12	12,475	13,955	15,635	17,345	19,240	21,325	11
Total Utility Processing	1,090	7	1,160	1,240	1,300	1,320	1,320	1,320	3
Total Other Processing	1,360	15	1,570	1,810	2,080	2,375	2,710	3,090	15

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EXHIBIT B-5

SYSTEMS OPERATIONS USER EXPENDITURE FORECAST BY INDUSTRY SECTOR, 1988-1993
($ Millions)

Industry Sector	1987	87-88 Growth (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Information Services Industry	3,180	14	3,645	4,150	4,740	5,385	6,130	7,010	14
Discrete Manufacturing	90	14	100	110	130	140	160	180	12
Process Manufacturing	35	11	40	45	50	50	55	60	9
Transportation	30	18	40	50	55	60	70	80	16
Utilities	25	12	30	30	40	40	50	50	12
Telecommunications	30	25	35	40	50	50	60	70	16
Retail Distribution	15	8	15	15	15	20	20	20	10
Wholesale Distribution	50	12	60	60	70	80	90	100	11
Banking & Finance	1,020	18	1,200	1,400	1,620	1,880	2,180	2,530	16
Insurance	480	13	545	620	710	810	920	1,050	14
Medical	470	16	550	630	710	810	920	1,050	14
Education	70	4	70	75	80	80	90	90	5
Services	5	25	10	10	10	15	15	15	5
Federal Government	290	8	315	340	360	390	410	455	8
State & Local Government	490	11	550	635	740	860	990	1,150	16
Other Industry Sector	10	15	15	20	20	20	20	30	12
Total Industry Sectors	3,110	14	3,575	4,080	4,660	5,305	6,050	6,930	14
Total Cross-Industry Sector	70	3	70	70	80	80	80	80	1

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EXHIBIT B-6

NETWORK SERVICES
USER EXPENDITURE FORECAST
BY INDUSTRY SECTOR, 1988-1993
($ Millions)

Industry Sector	1987	87-88 Growth (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Information Services Industry	4,945	25	6,210	7,675	9,440	11,565	14,100	17,185	23
Discrete Manufacturing	35	19	45	60	80	100	130	160	30
Process Manufacturing	545	19	660	790	945	1,130	1,340	1,575	19
Transportation	85	28	110	145	200	265	350	475	34
Utilities	50	21	70	70	90	110	130	170	21
Telecommunications	30	31	40	55	80	100	130	180	33
Wholesale Distribution	110	26	140	195	260	370	520	730	40
Retail Distribution	70	31	95	125	170	230	315	425	36
Banking & Finance	360	33	470	620	790	1,010	1,280	1,610	28
Insurance	130	17	160	190	225	270	320	380	20
Medical	320	24	395	510	645	830	1,050	1,335	28
Education	100	15	115	130	150	175	200	230	15
Services	310	21	380	460	565	680	810	960	21
Federal Government	680	26	850	940	1,040	1,140	1,250	1,380	10
State & Local Government	40	27	50	60	80	95	120	150	26
Other Industry Sector	50	13	60	80	110	150	190	255	33
Total Industry Sectors	2,915	24	3,640	4,430	5,430	6,655	8,135	10,015	23
Cross-Industry Data Bases									
Securities	600	27	760	970	1,200	1,470	1,800	2,170	23
Credit	700	23	860	1,060	1,270	1,510	1,780	2,070	19
Text/Bibliographic	130	28	170	210	270	330	405	490	24
News	450	31	590	775	990	1,260	1,580	1,970	27
Economic/Other	150	23	190	230	280	340	400	470	20
Total Cross-Industry Data Bases	2,030	26	2,570	3,245	4,010	4,910	5,965	7,170	23

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EXHIBIT B-7

NETWORK APPLICATIONS
USER EXPENDITURE FORECAST
BY INDUSTRY SECTOR, 1988-1993
($ Millions)

Industry Sector	1987	87-88 Growth (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Information Services Industry	995	24	1,240	1,510	1,925	2,435	3,165	4,145	28
Discrete Manufacturing	15	18	20	30	40	50	70	90	36
Process Manufacturing	35	23	50	60	85	120	170	235	40
Transportation	15	33	20	30	50	80	120	190	57
Utilities	20	22	30	30	40	50	60	80	23
Telecommunications	5	14	10	10	20	20	30	50	42
Retail Distribution	20	20	25	35	55	75	125	190	51
Wholesale Distribution	80	29	100	145	210	310	450	650	46
Banking & Finance	60	30	70	100	140	190	270	370	38
Insurance	30	19	40	50	65	80	110	140	30
Medical	120	25	145	200	265	360	480	650	35
Education	40	15	45	50	60	70	80	90	15
Services	10	17	10	10	15	20	30	40	39
Federal Government	490	25	610	680	760	850	950	1,070	12
State & Local Government	20	22	25	30	40	50	70	90	33
Other Industry Sector	35	11	40	50	80	110	150	210	40

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EXHIBIT B-8

ELECTRONIC INFORMATION USER EXPENDITURE FORECAST BY INDUSTRY SECTOR, 1988-1993
($ Millions)

Industry Sector Specific	1987	87-88 Growth (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Information Services Industry	3,950	25	4,970	6,165	7,515	9,130	10,935	13,040	21
Discrete Manufacturing	20	20	25	30	40	50	60	70	24
Process Manufacturing	510	18	610	730	860	1,010	1,170	1,340	17
Transportation	70	27	90	115	150	185	230	285	26
Utilities	30	20	40	40	50	60	70	90	19
Telecommunications	25	36	30	45	60	80	100	130	30
Retail Distribution	50	36	70	90	115	155	190	235	28
Wholesale Distribution	30	19	40	50	50	60	70	80	17
Banking & Finance	300	34	400	520	650	820	1,010	1,240	25
Insurance	100	17	120	140	160	190	210	240	15
Medical	200	23	250	310	380	470	570	685	23
Education	60	15	70	80	90	105	120	140	15
Services	300	22	370	450	550	660	780	920	20
Federal Government	190	28	240	260	280	290	300	310	5
State & Local Government	20	32	25	30	40	45	50	60	19
Other Industry Sector	15	15	20	30	30	40	40	45	14
Total Industry Sectors Specific	1,920	24	2,400	2,920	3,505	4,220	4,970	5,870	20
Cross-Industry Data Bases									
Securities	600	27	760	970	1,200	1,470	1,800	2,170	23
Credit	700	23	860	1,060	1,270	1,510	1,780	2,070	19
Text/Bibliographic	130	28	170	210	270	330	405	490	24
News	450	31	590	775	990	1,260	1,580	1,970	27
Economic/Other	150	23	190	230	280	340	400	470	20
Total Cross-Industry Data Bases	2,030	26	2,570	3,245	4,010	4,910	5,965	7,170	23

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EXHIBIT B-9

SOFTWARE
USER EXPENDITURE FORECAST
BY INDUSTRY SECTOR, 1988-1993
($ Millions)

Industry Sector	1987	87-88 Growth (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Information Services Industry	20,550	22	25,065	29,965	35,815	42,930	51,295	61,145	20
Application Software									
Discrete Manufacturing	1,130	21	1,380	1,620	1,915	2,270	2,710	3,235	19
Process Manufacturing	145	18	180	215	255	300	360	435	19
Transportation	215	25	260	330	400	490	590	715	22
Utilities	145	20	180	220	240	290	340	410	18
Telecommunications	110	49	155	195	255	340	455	605	32
Wholesale Distribution	290	32	390	465	580	705	875	1,090	23
Retail Distribution	180	32	235	320	410	540	715	925	31
Banking & Finance	1,490	17	1,750	2,030	2,370	2,795	3,300	3,930	18
Insurance	455	25	570	700	850	1,070	1,330	1,680	24
Medical	570	18	670	780	920	1,080	1,280	1,520	18
Education	450	13	505	560	630	700	830	855	11
Services	270	22	340	405	490	580	710	860	20
Federal Government	180	25	230	265	300	340	390	440	14
State & Local Gov't.	65	29	90	100	130	160	210	250	24
Other Industry Sector	130	19	160	190	220	260	310	360	18
Total Industry Sectors	5,825	21	7,095	8,395	9,965	11,920	14,405	17,310	20
Cross-Industry Sector									
Accounting	1,270	20	1,515	1,730	1,990	2,320	2,690	3,165	16
Education & Training	110	34	140	180	220	280	350	445	25
Engineering & Scientific	310	28	400	500	615	770	970	1,230	25
Human Resources	690	10	760	820	885	940	1,000	1,050	7
Office Systems	970	28	1,240	1,500	1,820	2,220	2,700	3,295	22
Planning & Analysis	1,210	23	1,490	1,725	2,005	2,310	2,670	3,080	16
Other Cross-Industry Sector	285	18	330	385	450	540	630	735	17
Total Cross-Industry Sectors	4,845	21	5,875	6,840	7,985	9,380	11,010	13,000	17
Total Application Software	10,670	21	12,970	15,235	17,950	21,300	25,415	30,310	19
Systems Software									
Application Development Tools	3,760	24	4,650	5,700	7,005	8,620	10,480	12,690	22
Systems Control	4,150	20	4,985	6,020	7,215	8,650	10,260	12,130	19
Data Center Management	1,970	24	2,460	3,010	3,645	4,360	5,140	6,015	20
Total Systems Software	9,880	22	12,095	14,730	17,865	21,630	25,880	30,835	21

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EXHIBIT B-10

MAINFRAME SOFTWARE USER EXPENDITURE FORECAST BY INDUSTRY SECTOR, 1988-1993

($ Millions)

Industry Sector	1987	87-88 Growth (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Information Services Industry	8,930	15	10,250	11,635	13,215	14,970	16,835	18,900	13
Application Software									
Discrete Manufacturing	280	11	310	340	370	400	440	470	8
Process Manufacturing	15	20	20	20	25	30	30	40	16
Transportation	95	17	110	130	150	170	200	230	16
Utilities	35	14	40	50	50	60	60	70	10
Telecommunications	70	44	95	120	150	190	240	300	26
Retail Distribution	15	38	20	30	35	45	55	65	25
Wholesale Distribution	160	30	210	230	270	300	340	390	14
Banking & Finance	770	10	850	930	1,030	1,135	1,250	1,380	10
Insurance	230	13	260	290	330	370	420	470	12
Medical	270	11	290	320	360	400	440	480	10
Education	70	4	70	70	80	80	80	85	4
Services	80	12	90	105	120	120	150	170	12
Federal Government	50	11	60	65	70	80	90	90	9
State & Local Government	30	24	40	40	50	60	70	80	16
Other Industry Sector	30	19	40	40	50	60	60	70	13
Total Industry Sectors	2,200	14	2,505	2,780	3,140	3,500	3,925	4,390	12
Cross-Industry Sector									
Accounting	570	10	630	660	700	740	770	810	5
Education & Training	30	22	30	40	40	50	60	70	16
Engineering & Scientific	90	14	110	120	130	150	170	190	12
Human Resources	320	5	340	350	360	350	340	330	(1)
Office Systems	170	6	180	190	200	210	220	230	6
Planning & Analysis	300	13	340	380	420	460	510	560	10
Other Cross-Industry Sector	140	11	150	175	190	220	240	265	11
Total Cross-Industry Sectors	1,620	10	1,780	1,915	2,040	2,180	2,310	2,455	7
Total Application Software	3,820	12	4,285	4,695	5,180	5,680	6,235	6,845	10
Systems Software									
Application Development Tools	1,830	16	2,120	2,460	2,850	3,310	3,800	4,340	15
Systems Control	2,140	14	2,435	2,780	3,165	3,610	4,080	4,610	14
Data Center Management	1,140	23	1,410	1,700	2,020	2,370	2,720	3,105	17
Total Systems Software	5,110	17	5,965	6,940	8,035	9,290	10,600	12,055	15

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EXHIBIT B-11

MINICOMPUTER SOFTWARE USER EXPENDITURE FORECAST BY INDUSTRY SECTOR, 1988-1993
($ Millions)

Industry Sector	1987	87-88 Growth (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Information Services Industry	6,965	17	8,175	9,540	11,060	12,860	14,875	17,200	16
Application Software									
Discrete Manufacturing	660	19	790	910	1,045	1,200	1,380	1,585	15
Process Manufacturing	100	10	110	130	145	160	180	205	13
Transportation	70	22	80	100	120	150	170	200	18
Utilities	50	13	60	70	70	80	90	100	11
Telecommunications	20	42	30	35	45	60	75	95	29
Retail Distribution	90	29	115	145	180	225	285	350	25
Wholesale Distribution	80	21	100	125	150	185	225	270	22
Banking & Finance	510	15	590	680	780	900	1,030	1,180	15
Insurance	85	18	100	120	130	160	180	210	16
Medical	200	15	230	260	300	340	390	450	14
Education	130	8	140	150	160	170	180	190	7
Services	110	17	130	150	180	210	240	280	17
Federal Government	70	20	80	90	100	110	120	140	11
State & Local Government	15	27	20	20	30	30	40	40	17
Other Industry Sector	90	15	100	120	130	150	180	200	15
Total Industry Sectors	2,280	17	2,675	3,105	3,565	4,130	4,765	5,495	15
Cross-Industry Sector									
Accounting	380	15	430	480	520	580	630	690	10
Education & Training	20	17	20	20	30	30	30	35	11
Engineering & Scientific	130	25	160	200	240	290	350	430	21
Human Resources	310	7	330	360	385	410	430	450	6
Office Systems	120	7	130	140	150	160	170	180	7
Planning & Analysis	240	15	280	315	360	400	450	510	13
Other Cross-Industry Sector	85	15	100	110	130	150	170	190	15
Total Cross-Industry Sectors	1,285	13	1,450	1,625	1,815	2,020	2,230	2,485	11
Total Application Software	3,565	16	4,125	4,730	5,380	6,150	6,995	7,980	14
Systems Software									
Application Development Tools	1,220	20	1,460	1,750	2,105	2,530	3,010	3,580	20
Systems Control	1,420	18	1,680	1,970	2,280	2,650	3,070	3,530	16
Data Center Management	760	20	910	1,090	1,295	1,530	1,800	2,110	18
Total Systems Software	3,400	19	4,050	4,810	5,680	6,710	7,880	9,220	18

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EXHIBIT B-12

WORKSTATION/PC SOFTWARE USER EXPENDITURE MARKET FORECAST BY INDUSTRY SECTOR, 1988-1993
($ Millions)

Industry Sector	1987	87-88 Growth (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Information Services Industry	4,655	42	6,640	8,790	11,540	15,100	19,585	25,045	30
Application Software									
Discrete Manufacturing	190	44	280	370	500	670	890	1,180	34
Process Manufacturing	30	44	50	65	85	110	150	190	32
Transportation	50	44	70	100	130	170	220	285	32
Utilities	60	31	80	100	120	150	190	240	26
Telecommunications	20	75	30	40	60	90	140	210	50
Wholesale Distribution	50	56	80	110	160	220	310	430	40
Retail Distribution	75	35	100	145	195	270	375	510	38
Banking & Finance	210	47	310	420	560	760	1,020	1,370	35
Insurance	140	50	210	290	390	540	730	1,000	37
Medical	100	44	150	200	260	340	450	590	32
Education	250	18	295	340	390	450	570	580	14
Services	80	40	120	150	190	250	320	410	28
Federal Government	60	43	90	110	130	150	180	210	18
State & Local Government	20	36	30	40	50	70	100	130	34
Other Industry Sector	10	50	20	30	40	50	70	90	33
Total Industry Sectors	1,345	40	1,915	2,510	3,260	4,290	5,715	7,425	31
Cross-Industry Sector									
Accounting	320	41	455	590	770	1,000	1,290	1,665	30
Education & Training	60	44	90	120	150	200	260	340	31
Engineering & Scientific	90	48	130	180	245	330	450	610	36
Human Resources	60	50	90	110	140	180	230	270	26
Office Systems	680	37	930	1,170	1,470	1,850	2,310	2,885	25
Planning & Analysis	670	30	870	1,030	1,225	1,450	1,710	2,010	18
Other Cross-Industry Sector	60	40	80	100	130	170	220	280	28
Total Cross-Industry Sectors	1,940	36	2,645	3,300	4,130	5,180	6,470	8,060	25
Total Application Software	3,285	38	4,560	5,810	7,390	9,470	12,185	15,485	28
Application Development Tools	710	50	1,070	1,490	2,050	2,780	3,670	4,770	35
Systems Control	590	48	870	1,270	1,770	2,390	3,110	3,990	35
Data Center Management	70	100	140	220	330	460	620	800	43
Total Systems Software	1,370	52	2,080	2,980	4,150	5,630	7,400	9,560	35

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EXHIBIT B-13

SYSTEMS SOFTWARE USER EXPENDITURE FORECAST BY SOFTWARE TYPE, 1988-1993
($ Millions)

Industry Sector	1987	87-88 Growth (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Information Services Industry	9,880	22	12,095	14,730	17,865	21,630	25,880	30,835	21
Application Development Tools	3,760	24	4,650	5,700	7,005	8,620	10,480	12,690	22
Mainframe	1,830	16	2,120	2,460	2,850	3,310	3,800	4,340	15
Minicomputer	1,220	20	1,460	1,750	2,105	2,530	3,010	3,580	20
Workstation/PC	710	50	1,070	1,490	2,050	2,780	3,670	4,770	35
Systems Control	4,150	20	4,985	6,020	7,215	8,650	10,260	12,130	19
Mainframe	2,140	14	2,435	2,780	3,165	3,610	4,080	4,610	14
Minicomputer	1,420	18	1,680	1,970	2,280	2,650	3,070	3,530	16
Workstation/PC	590	48	870	1,270	1,770	2,390	3,110	3,990	35
Data Center Management	1,970	24	2,460	3,010	3,645	4,360	5,140	6,015	20
Mainframe	1,140	23	1,410	1,700	2,020	2,370	2,720	3,105	17
Minicomputer	760	20	910	1,090	1,295	1,530	1,800	2,110	18
Workstation/PC	70	100	140	220	330	460	620	800	43
Mainframe	5,110	17	5,965	6,940	8,035	9,290	10,600	12,055	15
Application Development Tools	1,830	16	2,120	2,460	2,850	3,310	3,800	4,340	15
Systems Control	2,140	14	2,435	2,780	3,165	3,610	4,080	4,610	14
Data Center Management	1,140	23	1,410	1,700	2,020	2,370	2,720	3,105	17
Minicomputer	3,400	19	4,050	4,810	5,680	6,710	7,880	9,220	18
Application Development Tools	1,220	20	1,460	1,750	2,105	2,530	3,010	3,580	20
Systems Control	1,420	18	1,680	1,970	2,280	2,650	3,070	3,530	16
Data Center Management	760	20	910	1,090	1,295	1,530	1,800	2,110	18
Workstation/PC	1,370	52	2,080	2,980	4,150	5,630	7,400	9,560	35
Application Development Tools	710	50	1,070	1,490	2,050	2,780	3,670	4,770	35
Systems Control	590	48	870	1,270	1,770	2,390	3,110	3,990	35
Data Center Management	70	100	140	220	330	460	620	800	43

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EXHIBIT B-14

TURNKEY SYSTEMS
USER EXPENDITURE FORECAST
BY INDUSTRY SECTOR, 1988-1993
($ Millions)

Industry Sector	1987	87-88 Growth (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Information Services Industry	8,535	12	9,525	10,580	11,675	12,775	13,940	15,155	10
Discrete Manufacturing	1,660	20	2,000	2,200	2,400	2,590	2,790	2,990	8
Process Manufacturing	370	9	400	450	490	540	580	630	9
Transportation	140	9	160	175	195	210	235	260	10
Utilities	30	10	35	40	40	45	50	50	10
Telecommunications	240	14	270	315	360	410	470	530	14
Retail Distribution	575	10	635	700	770	840	915	990	9
Wholesale Distribution	320	14	365	410	460	510	570	625	11
Banking & Finance	710	10	780	870	970	1,070	1,170	1,280	10
Insurance	200	18	230	255	280	300	320	350	8
Medical	610	10	665	750	840	940	1,040	1,140	11
Education	170	9	180	200	220	240	270	290	9
Services	410	11	450	510	570	630	700	770	11
Federal Government	370	6	390	420	460	490	520	555	7
State & Local Government	110	12	120	140	160	180	200	220	12
Other Industry Sector	320	9	345	380	420	460	500	540	9
Total Industry Sectors	6,235	13	7,025	7,815	8,635	9,455	10,330	11,220	10
Cross-Industry Sector									
Accounting	390	3	400	420	440	450	460	475	3
Education & Training	140	4	150	160	165	170	180	180	4
Engineering & Scientific	310	7	330	370	410	450	490	540	10
Human Resources	100	10	110	115	120	130	130	140	5
Office Systems	750	13	850	990	1,135	1,295	1,470	1,660	14
Planning & Analysis	270	5	290	300	310	320	330	340	3
Other Cross-Industry Sector	340	9	370	410	460	505	550	600	10
Total Cross-Industry Sectors	2,300	8	2,500	2,765	3,040	3,320	3,610	3,935	9

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EXHIBIT B-15

SYSTEMS INTEGRATION
USER EXPENDITURE FORECAST
BY INDUSTRY SECTOR, 1988-1993
($ Millions)

Industry Sector	1987	87-88 Growth (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Information Services Industry	3,855	25	4,800	6,025	7,545	9,470	11,770	14,725	25
Discrete Manufacturing	420	37	580	760	1,000	1,330	1,750	2,310	32
Process Manufacturing	80	28	100	130	170	210	250	310	24
Transportation	80	29	110	135	170	220	270	335	26
Utilities	130	35	170	230	310	410	530	690	32
Telecommunications	100	21	125	150	180	210	250	300	19
Retail Distribution	95	45	135	190	275	385	540	750	41
Wholesale Distribution	90	25	110	140	170	210	250	310	23
Banking & Finance	160	48	230	340	495	720	1,040	1,485	45
Insurance	90	40	125	160	210	270	350	450	29
Medical	120	40	160	210	260	330	400	500	25
Education	50	20	55	70	80	95	110	140	20
Services	20	42	30	40	50	70	95	130	37
Federal Government	2,100	15	2,420	2,910	3,485	4,160	4,905	5,760	19
State & Local Gov't.	260	44	380	470	580	720	870	1,060	23
Other Industry Sector	60	23	70	90	110	130	160	195	23

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EXHIBIT B-16

PROFESSIONAL SERVICES USER EXPENDITURE FORECAST BY INDUSTRY SECTOR, 1988-1993
($ Millions)

Industry Sector	1987	87-88 Growth (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Information Services Industry	12,715	18	15,020	17,585	20,490	23,845	27,705	32,195	16
Discrete Manufacturing	2,460	27	3,120	3,740	4,450	5,290	6,270	7,430	19
Process Manufacturing	1,220	22	1,490	1,830	2,240	2,730	3,320	4,030	22
Transportation	150	14	170	200	230	270	310	340	16
Utilities	370	10	410	450	500	560	620	690	11
Telecommunications	610	11	680	810	940	1,090	1,255	1,455	16
Retail Distribution	140	29	180	215	260	305	365	430	19
Wholesale Distribution	240	18	280	330	390	450	530	610	17
Banking & Finance	1,600	19	1,910	2,270	2,700	3,210	3,820	4,550	19
Insurance	1,050	15	1,200	1,420	1,660	1,940	2,260	2,630	17
Medical	260	15	300	355	420	490	580	680	18
Education	50	15	60	70	80	90	105	120	15
Services	100	14	120	140	160	190	220	260	17
Federal Government	2,550	14	2,910	3,280	3,670	4,100	4,530	5,000	11
State & Local Gov't.	1,655	15	1,900	2,130	2,390	2,670	2,990	3,350	12
Other Industry Sector	260	12	290	345	400	460	530	620	16

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EXHIBIT B-17

DISCRETE MANUFACTURING SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993 ($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Discrete Manufacturing Sector	6,685	23	8,205	9,590	11,215	13,100	15,350	18,015	17
Processing Services	980	10	1,080	1,210	1,370	1,520	1,700	1,890	12
Transaction Processing Services	890	10	980	1,100	1,240	1,380	1,540	1,710	12
Systems Operations	90	14	100	110	130	140	160	180	12
Network/Electronic Information Services	35	19	45	60	80	100	130	160	30
Electronic Information Services	20	20	25	30	40	50	60	70	24
Network Applications	15	18	20	30	40	50	70	90	36
Application Software Products	1,130	21	1,380	1,620	1,915	2,270	2,710	3,235	19
Mainframe	280	11	310	340	370	400	440	470	8
Minicomputer	660	19	790	910	1,045	1,200	1,380	1,585	15
Workstation/PC	190	44	280	370	500	670	890	1,180	34
Turnkey Systems	1,660	20	2,000	2,200	2,400	2,590	2,790	2,990	8
Systems Integration	420	37	580	760	1,000	1,330	1,750	2,310	32
Professional Services	2,460	27	3,120	3,740	4,450	5,290	6,270	7,430	19

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EXHIBIT B-18

PROCESS MANUFACTURING SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993
($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Process Manufacturing Sector	2,955	18	3,510	4,190	4,990	5,915	6,985	8,250	19
Processing Services	595	15	680	775	890	1,005	1,135	1,270	13
Transaction Processing Services	560	15	640	730	840	955	1,080	1,210	14
Systems Operations	35	11	40	45	50	50	55	60	9
Network/Electronic Information Services	545	19	660	790	945	1,130	1,340	1,575	19
Electronic Information Services	510	18	610	730	860	1,010	1,170	1,340	17
Network Applications	35	23	50	60	85	120	170	235	40
Application Software Products	145	18	180	215	255	300	360	435	19
Mainframe	15	20	20	20	25	30	30	40	16
Minicomputer	100	10	110	130	145	160	180	205	13
Workstation/PC	30	44	50	65	85	110	150	190	32
Turnkey Systems	370	9	400	450	490	540	580	630	9
Systems Integration	80	28	100	130	170	210	250	310	24
Professional Services	1,220	22	1,490	1,830	2,240	2,730	3,320	4,030	22

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EXHIBIT B-19

TRANSPORTATION SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993
($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Transportation Sector	2,055	15	2,370	2,780	3,260	3,795	4,420	5,145	17
Processing Services	1,385	12	1,560	1,795	2,065	2,340	2,665	3,020	14
Transaction Processing Services	1,355	12	1,520	1,745	2,010	2,280	2,595	2,940	14
Systems Operations	30	18	40	50	55	60	70	80	16
Network/Electronic Information Services	85	28	110	145	200	265	350	475	34
Electronic Information Services	70	27	90	115	150	185	230	285	26
Network Applications	15	33	20	30	50	80	120	190	57
Application Software Products	215	25	260	330	400	490	590	715	22
Mainframe	95	17	110	130	150	170	200	230	16
Minicomputer	70	22	80	100	120	150	170	200	18
Workstation/PC	50	44	70	100	130	170	220	285	32
Turnkey Systems	140	9	160	175	195	210	235	260	10
Systems Integration	80	29	110	135	170	220	270	335	26
Professional Services	150	14	170	200	230	270	310	340	16

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EXHIBIT B-20

UTILITIES SECTOR
USER EXPENDITURE FORECAST
BY DELIVERY MODE, 1988-1993
($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Utilities Sector	800	17	955	1,100	1,290	1,535	1,800	2,150	18
Processing Services	75	10	90	90	110	120	130	140	11
Transaction Processing Services	50	10	60	60	70	80	80	90	10
Systems Operations	25	12	30	30	40	40	50	50	12
Network/Electronic Information Services	50	21	70	70	90	110	130	170	21
Electronic Information	30	20	40	40	50	60	70	90	19
Network Applications Services	20	22	30	30	40	50	60	80	23
Application Software Products	145	20	180	220	240	290	340	410	18
Mainframe	35	14	40	50	50	60	60	70	10
Minicomputer	50	13	60	70	70	80	90	100	11
Workstation/PC	60	31	80	100	120	150	190	240	26
Turnkey Systems	30	10	35	40	40	45	50	50	10
Systems Integration	130	35	170	230	310	410	530	690	32
Professional Services	370	10	410	450	500	560	620	690	11

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EXHIBIT B-21

TELECOMMUNICATIONS SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993
($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Telecommunications Sector	1,580	16	1,830	2,175	2,575	3,010	3,550	4,200	18
Processing Services	490	15	560	650	760	860	990	1,130	15
Transaction Processing Services	460	14	525	610	710	810	930	1,060	15
Systems Operations	30	25	35	40	50	50	60	70	16
Network/Electronic Information Services	30	31	40	55	80	100	130	180	33
Electronic Information Services	25	36	30	45	60	80	100	130	30
Network Applications	5	14	10	10	20	20	30	50	42
Application Software Products	110	49	155	195	255	340	455	605	32
Mainframe	70	44	95	120	150	190	240	300	26
Minicomputer	20	42	30	35	45	60	75	95	29
Workstation/PC	20	75	30	40	60	90	140	210	50
Turnkey Systems	240	14	270	315	360	410	470	530	14
Systems Integration	100	21	125	150	180	210	250	300	19
Professional Services	610	11	680	810	940	1,090	1,255	1,455	16

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EXHIBIT B-22

WHOLESALE DISTRIBUTION SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993 ($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Wholesale Distribution Sector	1,355	19	1,615	1,900	2,260	2,685	3,225	3,885	19
Processing Services	305	8	330	360	400	440	480	520	9
Transaction Processing Services	255	7	270	300	330	360	390	420	9
Systems Operations	50	12	60	60	70	80	90	100	11
Network/Electronic Information Services	110	26	140	195	260	370	520	730	40
Electronic Information Services	30	19	40	50	50	60	70	80	17
Network Applications	80	29	100	145	210	310	450	650	46
Application Software Products	290	32	390	465	580	705	875	1,090	23
Mainframe	160	30	210	230	270	300	340	390	14
Minicomputer	80	21	100	125	150	185	225	270	22
Workstation/PC	50	56	80	110	160	220	310	430	40
Turnkey Systems	320	14	365	410	460	510	570	625	11
Systems Integration	90	25	110	140	170	210	250	310	23
Professional Services	240	18	280	330	390	450	530	610	17

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EXHIBIT B-23

RETAIL DISTRIBUTION SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993
($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Retail Distribution Sector	1,180	20	1,415	1,700	2,055	2,495	3,065	3,765	22
Processing Services	120	15	135	150	170	195	215	245	13
Transaction Processing Services	105	15	120	135	155	175	195	225	13
Systems Operations	15	8	15	15	15	20	20	20	10
Network/Electronic Information Services	70	31	95	125	170	230	315	425	36
Electronic Information Services	50	36	70	90	115	155	190	235	28
Network Applications	20	20	25	35	55	75	125	190	51
Application Software Products	180	32	235	320	410	540	715	925	31
Mainframe	15	38	20	30	35	45	55	65	25
Minicomputer	90	29	115	145	180	225	285	350	25
Workstation/PC	75	35	100	145	195	270	375	510	38
Turnkey Systems	575	10	635	700	770	840	915	990	9
Systems Integration	95	45	135	190	275	385	540	750	41
Professional Services	140	29	180	215	260	305	365	430	19

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EXHIBIT B-24

BANKING AND FINANCE SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993
($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Banking and Finance Sector	7,590	18	8,930	10,480	12,305	14,475	17,060	20,185	18
Processing Services	3,270	16	3,790	4,350	4,980	5,670	6,450	7,330	14
Transaction Processing Services	2,250	15	2,590	2,950	3,360	3,790	4,270	4,800	13
Systems Operations	1,020	18	1,200	1,400	1,620	1,880	2,180	2,530	16
Network/Electronic Information Services	360	33	470	620	790	1,010	1,280	1,610	28
Electronic Information Services	300	34	400	520	650	820	1,010	1,240	25
Network Applications	60	30	70	100	140	190	270	370	38
Application Software Products	1,490	17	1,750	2,030	2,370	2,795	3,300	3,930	18
Mainframe	770	10	850	930	1,030	1,135	1,250	1,380	10
Minicomputer	510	15	590	680	780	900	1,030	1,180	15
Workstation/PC	210	47	310	420	560	760	1,020	1,370	35
Turnkey Systems	710	10	780	870	970	1,070	1,170	1,280	10
Systems Integration	160	48	230	340	495	720	1,040	1,485	45
Professional Services	1,600	19	1,910	2,270	2,700	3,210	3,820	4,550	19

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EXHIBIT B-25

INSURANCE SECTOR
USER EXPENDITURE FORECAST
BY DELIVERY MODE, 1988-1993
($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Insurance Sector	2,655	17	3,110	3,665	4,295	5,070	5,960	7,050	18
Processing Services	730	13	825	940	1,070	1,220	1,380	1,560	14
Transaction Processing Services	250	12	280	320	360	410	460	510	13
Systems Operations	480	13	545	620	710	810	920	1,050	14
Network/Electronic Information Services	130	17	160	190	225	270	320	380	20
Electronic Information Services	100	17	120	140	160	190	210	240	15
Network Applications	30	19	40	50	65	80	110	140	30
Application Software Products	455	25	570	700	850	1,070	1,330	1,680	24
Mainframe	230	13	260	290	330	370	420	470	12
Minicomputer	85	18	100	120	130	160	180	210	16
Workstation/PC	140	50	210	290	390	540	730	1,000	37
Turnkey Systems	200	18	230	255	280	300	320	350	8
Systems Integration	90	40	125	160	210	270	350	450	29
Professional Services	1,050	15	1,200	1,420	1,660	1,940	2,260	2,630	17

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EXHIBIT B-26

MEDICAL SECTOR
USER EXPENDITURE FORECAST
BY DELIVERY MODE, 1988-1993
($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Medical Sector	2,775	16	3,215	3,765	4,385	5,130	5,990	7,025	17
Processing Services	895	14	1,025	1,160	1,300	1,460	1,640	1,850	12
Transaction Processing Services	425	12	475	530	590	650	720	800	11
Systems Operations	470	16	550	630	710	810	920	1,050	14
Network/Electronic Information Services	320	24	395	510	645	830	1,050	1,335	28
Electronic Information Services	200	23	250	310	380	470	570	685	23
Network Applications	120	25	145	200	265	360	480	650	35
Application Software Products	570	18	670	780	920	1,080	1,280	1,520	18
Mainframe	270	11	290	320	360	400	440	480	10
Minicomputer	200	15	230	260	300	340	390	450	14
Workstation/PC	100	44	150	200	260	340	450	590	32
Turnkey Systems	610	10	665	750	840	940	1,040	1,140	11
Systems Integration	120	40	160	210	260	330	400	500	25
Professional Services	260	15	300	355	420	490	580	680	18

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EXHIBIT B-27

EDUCATION SECTOR
USER EXPENDITURE FORECAST
BY DELIVERY MODE, 1988-1993
($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Education Sector	1,050	11	1,145	1,275	1,410	1,555	1,785	1,915	11
Processing Services	230	3	230	245	250	255	270	280	3
Transaction Processing Services	160	3	160	170	170	175	180	190	3
Systems Operations	70	4	70	75	80	80	90	90	5
Network/Electronic Information Services	100	15	115	130	150	175	200	230	15
Electronic Information Services	60	15	70	80	90	105	120	140	15
Network Applications	40	15	45	50	60	70	80	90	15
Application Software Products	450	13	505	560	630	700	830	855	11
Mainframe	70	4	70	70	80	80	80	85	4
Minicomputer	130	8	140	150	160	170	180	190	7
Workstation/PC	250	18	295	340	390	450	570	580	14
Turnkey Systems	170	9	180	200	220	240	270	290	9
Systems Integration	50	20	55	70	80	95	110	140	20
Professional Services	50	15	60	70	80	90	105	120	15

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EXHIBIT B-28

SERVICES SECTOR
USER EXPENDITURE FORECAST
BY DELIVERY MODE, 1988-1993
($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Services Sector	1,705	16	2,000	2,285	2,625	2,995	3,435	3,935	15
Processing Services	595	13	680	730	790	845	900	955	7
Transaction Processing Services	590	13	670	720	780	830	885	940	7
Systems Operations	5	25	10	10	10	15	15	15	5
Network/Electronic Information Services	310	22	380	460	565	680	810	960	21
Electronic Information Services	300	12	370	450	550	660	780	920	20
Network Applications	10	17	10	10	15	20	30	40	39
Application Software Products	270	22	340	405	490	580	710	860	20
Mainframe	80	12	90	105	120	120	150	170	12
Minicomputer	110	17	130	150	180	210	240	280	17
Workstation/PC	80	40	120	150	190	250	320	410	28
Turnkey Systems	410	11	450	510	570	630	700	770	11
Systems Integration	20	42	30	40	50	70	95	130	37
Professional Services	100	14	120	140	160	190	220	260	17

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EXHIBIT B-29

FEDERAL GOVERNMENT SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993
($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Federal Government Sector	6,500	15	7,450	8,515	9,695	11,025	12,435	14,040	14
Processing Services	620	4	650	700	740	795	840	905	7
Transaction Processing Services	330	1	335	360	380	405	430	450	6
Systems Operations	290	8	315	340	360	390	410	455	8
Network/Electronic Information Services	680	26	850	940	1,040	1,140	1,250	1,380	10
Electronic Information Services	190	28	240	260	280	290	300	310	5
Network Applications	490	25	610	680	760	850	950	1,070	12
Application Software Products	180	25	230	265	300	340	390	440	14
Mainframe	50	11	60	65	70	80	90	90	9
Minicomputer	70	20	80	90	100	110	120	140	11
Workstation/PC	60	43	90	110	130	150	180	210	18
Turnkey Systems	370	6	390	420	460	490	520	555	7
Systems Integration	2,100	15	2,420	2,910	3,485	4,160	4,905	5,760	19
Professional Services	2,550	14	2,910	3,280	3,670	4,100	4,530	5,000	11

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EXHIBIT B-30

STATE AND LOCAL GOVERNMENT SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993 ($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total State and Local Government Sector	2,780	18	3,280	3,755	4,340	4,985	5,720	6,580	15
Processing Services	650	13	740	855	1,000	1,160	1,330	1,550	16
Transaction Processing Services	160	20	190	220	260	300	340	400	16
Systems Operations	490	11	550	635	740	860	990	1,150	16
Network/Electronic Information Services	40	27	50	60	80	95	120	150	26
Electronic Information Services	20	32	25	30	40	45	50	60	19
Network Applications	20	22	25	30	40	50	70	90	33
Application Software Products	65	29	90	100	130	160	210	250	24
Mainframe	30	24	40	40	50	60	70	80	16
Minicomputer	15	27	20	20	30	30	40	40	17
Workstation/PC	20	36	30	40	50	70	100	130	34
Turnkey Systems	110	12	120	140	160	180	200	220	13
Systems Integration	260	44	380	470	580	720	870	1,060	23
Professional Services	1,655	15	1,900	2,130	2,390	2,670	2,990	3,350	12

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EXHIBIT B-31

OTHER INDUSTRY SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993
($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Other Industry Sector	1,360	12	1,520	1,755	2,010	2,285	2,600	2,980	14
Processing Services	540	10	595	670	750	825	910	1,010	11
Transaction Processing Services	530	10	580	650	730	805	890	980	11
Systems Operations	10	15	15	20	20	20	20	30	12
Network/Electronic Information Services	50	13	60	80	110	150	190	255	33
Electronic Information Services	15	15	20	30	30	40	40	45	14
Network Applications	35	11	40	50	80	110	150	210	40
Application Software Products	130	19	160	190	220	260	310	360	18
Mainframe	30	19	40	40	50	60	60	70	13
Minicomputer	90	15	100	120	130	150	180	200	15
Workstation/PC	10	50	20	30	40	50	70	90	33
Turnkey Systems	320	9	345	380	420	460	500	540	9
Systems Integration	60	23	70	90	110	130	160	195	23
Professional Services	260	11	290	345	400	460	530	620	16

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EXHIBIT B-32

ACCOUNTING CROSS-INDUSTRY SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993 ($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Accounting Sector	2,610	11	2,905	3,180	3,500	3,870	4,270	4,790	11
Processing Services	950	4	990	1,030	1,070	1,100	1,120	1,150	3
Transaction Processing Services	950	4	990	1,030	1,070	1,100	1,120	1,150	3
Application Software Products	1,270	20	1,515	1,730	1,990	2,320	2,690	3,165	16
Mainframe	570	10	630	660	700	740	770	810	5
Minicomputer	380	15	430	480	520	580	630	690	10
Workstation/PC	320	41	455	590	770	1,000	1,290	1,665	30
Turnkey Systems	390	3	400	420	440	450	460	475	3

EXHIBIT B-33

EDUCATION AND TRAINING CROSS-INDUSTRY SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993 ($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Education & Training Sector	340	13	380	435	485	550	640	735	14
Processing Services	90	3	90	95	100	100	110	110	4
Transaction Processing Services	90	3	90	95	100	100	110	110	4
Application Software Products	110	34	140	180	220	280	350	445	26
Mainframe	30	22	30	40	40	50	60	70	16
Minicomputer	20	17	20	20	30	30	30	35	11
Workstation/PC	60	44	90	120	150	200	260	340	31
Turnkey Systems	140	7	150	160	165	170	180	180	4

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EXHIBIT B-34

ENGINEERING AND SCIENTIFIC CROSS-INDUSTRY SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993 ($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Engineering & Scientific Sector	730	16	845	990	1,155	1,350	1,600	1,910	18
Processing Services	110	3	115	120	130	130	140	140	4
Transaction Processing Services	110	3	115	120	130	130	140	140	4
Application Software Products	310	28	400	500	615	770	970	1,230	25
Mainframe	90	14	110	120	130	150	170	190	12
Minicomputer	130	25	160	200	240	290	350	430	22
Workstation/PC	90	48	130	180	245	330	450	610	36
Turnkey Systems	310	7	330	370	410	450	490	540	10

EXHIBIT B-35

HUMAN RESOURCES CROSS-INDUSTRY SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993 ($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Human Resources Sector	1,780	16	2,065	2,295	2,535	2,770	3,030	3,310	10
Processing Services	990	21	1,195	1,360	1,530	1,700	1,900	2,120	12
Transaction Processing Services	990	21	1,195	1,360	1,530	1,700	1,900	2,120	12
Application Software Products	690	10	760	820	885	940	1,000	1,050	7
Mainframe	320	5	340	350	360	350	340	330	(1)
Minicomputer	310	7	330	360	385	410	430	450	7
Workstation/PC	60	50	90	110	140	180	230	270	26
Turnkey Systems	100	9	110	115	120	130	130	140	5

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EXHIBIT B-36

OFFICE SYSTEMS CROSS-INDUSTRY SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993 ($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Office Systems Sector	1,760	21	2,130	2,530	2,995	3,555	4,210	4,985	19
Processing Services	40	(2)	40	40	40	40	40	30	(4)
Transaction Processing Services	40	(2)	40	40	40	40	40	30	(4)
Application Software Products	970	28	1,240	1,500	1,820	2,220	2,700	3,295	22
Mainframe	170	6	180	190	200	210	220	230	6
Minicomputer	120	7	130	140	150	160	170	180	7
Workstation/PC	680	37	930	1,170	1,470	1,850	2,310	2,885	25
Turnkey Systems	750	13	850	990	1,135	1,295	1,470	1,660	14

EXHIBIT B-37

PLANNING AND ANALYSIS CROSS-INDUSTRY SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993 ($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Planning and Analysis Sector	1,700	17	2,000	2,235	2,515	2,830	3,185	3,600	12
Processing Services	220	(2)	220	210	200	200	185	180	(4)
Transaction Processing Services	220	(2)	220	210	200	200	185	180	(4)
Application Software Products	1,210	23	1,490	1,725	2,005	2,310	2,670	3,080	16
Mainframe	300	13	340	380	420	460	510	560	10
Minicomputer	240	15	280	315	360	400	450	510	13
Workstation/PC	670	30	870	1,030	1,225	1,450	1,710	2,010	18
Turnkey Systems	270	5	290	300	310	320	330	340	3

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EXHIBIT B-38

OTHER CROSS-INDUSTRY SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988-1993
($ Millions)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Other Cross-Industry Sector	1,005	14	1,130	1,295	1,490	1,715	1,940	2,205	14
Processing Services	380	14	430	500	580	670	760	870	15
Transaction Processing Services	380	14	430	500	580	670	760	870	15
Application Software Products	285	18	330	385	450	540	630	735	17
Mainframe	140	11	150	175	190	220	240	265	11
Minicomputer	85	15	100	110	130	150	170	190	15
Workstation/PC	60	40	80	100	130	170	220	280	28
Turnkey Systems	340	9	370	410	460	505	550	600	10

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